REMARKS

Please reconsider the application in view of the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1-20 are pending. Claim 1 is independent. The remaining claims depend, directly or indirectly, from claim 1.

Request for an Examiner Interview

Upon filing of this RCE, Applicant requests an Examiner Interview to discuss the arguments presented herewith and the cited prior art US Publ. No. 2001/0055462 ("Seibel"). An Applicant Initiated Interview Request Form is attached. Applicant requests the Examiner to contact the undersigned to schedule a convenient day/time for the interview after receiving this paper.

Rejection(s) under 35 U.S.C. § 102

Claims 1, 4, 6-8, 10, 12-16, and 18-19 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Seibel. This rejection is respectfully traversed.

The claimed invention relates to a miniature optical head with integrated scanning for producing a homogeneous confocal image. More specifically, the invention utilizes a ball lens at the *very end of* a mechanical optical body such that the ball lens is used to focus the light beam onto an excitation point within a sample (tissue). That is, the ball lens is positioned such that it is partially inside the mechanical optical body and partially outside of the mechanical optical

body. The part that is partially outside of the mechanical optical body is the portion of the ball lens that actually touches or goes into the sample.

Accordingly, the claimed invention requires, in part, (i) a ball lens arranged at the **end of the optical head** causing said light beam to converge into an excitation point; and (ii) wherein, said ball lens is partially arranged outside the **body constituting the optical head** such that when the optical head is positioned on the sample, the outer part of the ball lens constitutes a protuberance pushing into the sample. (Emphasis added). Applicant respectfully asserts that Seibel fails to disclose the aforementioned limitations required by the independent claims.

Under 35 U.S.C. § 102, "[a] claim is anticipated only if *each and every element* as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987) (emphasis added). Further, "[t]he identical invention must be shown in as complete detail as is contained in the patent claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Further, the prior art reference must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements arranged as in the claim. The "arranged as in the claim" requirement applies to all claims and refers to the need for an anticipatory reference to show all the limitations of the claims arranged or combined in the same way as recited in the claims. *See Net MoneyIn, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1369-70 (Fed. Cir. 2008). Applicant respectfully asserts that Seibel fails to anticipate claim 1 for the following reasons.

Turning to the rejection of the claims, Seibel shows a ball lens 245 that is positioned in between fiber optic 244 and scan lens 248. *See* Seibel, Figure 5H. However, in contrast to the

claimed invention in which the ball lens is the element used to focus the light beam, in Seibel, the scan lens 248 is the optical element that is used to focus the light beam. That is, the scan lens 248 of Seibel is the optical element that is positioned at the end of the optical body constituting elements 244, 245, and 248. It logically follows from the above that the ball lens of Seibel is not the element that is "arranged at the end of the [body] optical head causing said light beam to converge into an excitation point, as required by (i) above. In fact, Seibel explicitly refers to the ball lens 245 in Fig. 5H as a collimating lens. A collimating lens, by definition, cannot focus light. This is the reason why the additional scanning lens 248 is necessary in the system of Seibel.

Further, with respect to (ii) above, Applicant asserts that the Examiner appears to be misconstruing the claimed "body constituting the optical head," as recited in independent claim 1. The "body" that is referred to in the claimed invention is that which is shown in Figure 2 as element 16 (the entire structure within the diagonally lined box). Specifically, the "body" as claimed in the present invention includes elements 2b, 10, 11, and 12 (the ball lens). This is clearly recited as "body constituting the optical head" in claim 1.

On page 3 of the Office Action, the Examiner states, referring to Fig. 3A of Seibel, "where ball lens that would be disposed at tip of optical fiber 94 would be outside "bodies" such as stationary mechanical support 82, mechanical base 86, etc." There are several flaws in the Examiner's logic. First, the Examiner assumes that the ball lens would be disposed at the tip of optical fiber 94 shown in Fig. 3A. However, there is no explicit disclosure in Seibel that this is the case. In fact, Fig. 3A of Seibel has nothing to do with the optics used to focus a beam of light. Rather, Fig. 3A is directed to the components of the scanning device. A complete read of paragraphs [0077] and [0078] of Seibel reveals that absolutely no mention is made of the ball

lens or where it may be positioned within the structure of Fig. 3A. Accordingly, the Examiner is clearly overreaching by concluding that the ball lens of Figure 5H is somehow positioned at the end of the structure shown in Fig. 3A in Seibel, which is wholly improper. Further, in view of *Net MoneyIn*, independent claim 1 is clearly patentable over Seibel, as Seibel fails to show a ball lens arranged as required by claim 1 (*i.e.*, at the end of the body constituting the optical head).

Second, the Examiner appears to equate the "bodies" 82 and 86 of Seibel with the claimed "body constituting the optical head." *See* Action, page 3. As described above, the claimed body includes elements 2b, 10, 11, and 12 as shown in Figure 2 and described on pages 8-9 of the Instant Specification. Elements 82 and 86 as shown in Fig. 3A of Seibel do not equate to the claimed body because these components are of the scanning device and are not equivalent to the entire structure that constitutes the optical head body 16, as required by the claimed invention. In fact, a side-by-side comparison of Figure 2 of the Instant Specification, showing body 16, and Figure 3A of Seibel reveals that elements 82 and 86 of Seibel do not encompass that which body 16 does in the present application. Clearly, elements 82 and 86 of Seibel do not constitute the optical elements that are used to focus the beam of light. Thus, by equating elements 82 and 86 to the claimed body, the Examiner is either mischaracterizing the disclosure of Seibel or reading out specifically claimed limitations, both of which are wholly improper.

Figure 10 of Seibel, as cited by the Examiner on page 3 of the Action, also fails to show the ball lens of Figure 5H as being part of the structure that is shown within a human body at a treatment site. In fact, it appears from the Examiner's comments with respect to Figure 10 of Seibel that the Examiner is shifting his interpretation of "body" as used in the claimed invention to include the human body passage 510 shown in Figure 10 of Seibel. This is clearly erroneous, as the body referred to in the claimed invention is that which constitutes the optical head.

Moreover, there is no indication in Figure 10 of Seibel as to where the ball lens is positioned. Again, the Examiner appears to be inferring, without any base in fact, that the balls lens is somehow positioned at the very end of element 500 as shown in Figure 10 of Seibel. However, there is no disclosure of this in Seibel. From the above, it logically follows that Seibel fails to disclose the limitation required by (ii) above, as the ball lens of Figure 5H is not shown in Seibel to protrude outside of the body constituting the optical head, as defined by the claimed invention.

As such, independent claim 1 is patentable over Seibel, for at least the above reasons. Pending dependent claims are patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Rejection(s) under 35 U.S.C. § 103

Claims 2-3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Seibel in view of US Pat. No. 6,485,413 ("Boppart"). Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Seibel in view of European Publ. No. 0664101 ("Wilta"). Claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Seibel in view of US Pat. No. 6,294,775 ("Seibel '775). Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Seibel in view of US Publ. No. 2004/0151466 ("Crossman-Bosworth"). Finally, claims 17 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Seibel in view of Crossman-Bosworth, and further in view of "Tunable VCSEL" by Chang-Hasnian (hereinafter "Chang").

Applicant respectfully asserts that none of the secondary and tertiary cited prior art references mentioned above, combined with Seibel or taken alone, render independent claim 1

obvious. Specifically, as described above, Seibel fails to disclose or render obvious the limitations required by (i) and (ii) above. Furthermore, none of Boppart, Wilta, Seibel '775, Crossman-Bosworth, or Chang disclose or render obvious a ball lens that is positioned at the end of a mechanical optical body and which is used to focus a light beam onto an excitation point. Further, none of the aforementioned references disclose that the ball lens is protruding outside of the optical body such that the ball lens actually touches or goes through the sample onto which the light beam is being focused. Thus, none of the cited prior art references provide that which Seibel lacks with respect to independent claim 1.

Accordingly, independent claim 1 is patentable over Seibel combined with any of the aforementioned prior art references. Pending dependent claims are patentable for at least the same reasons. Withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 17452/018001).

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Respectfully submitted,

By Jonathan P. Osha 56,235
Registration No.: 33,986
OSHA · LIANG LLP
909 Fannin Street, Suite 3500
Houston, Texas 77010
(713) 228-8600
(713) 228-8778 (Fax)
Attorney for Applicant

Attachment (Applicant Initiated Examiner Interview Form)